

DOE / EA - 0469

Environmental Assessment

Advanced Coal Conversion Process Demonstration Project

Clean Coal Technology Program

Western Energy Company
Rosebud Mine
Rosebud County, Montana



March 1991

U.S. Department of Energy
Assistant Secretary for Fossil Energy

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DEMONSTRATION PROJECT

CLEAN COAL TECHNOLOGY PROGRAM

WESTERN ENERGY COMPANY
ROSEBUD MINE
ROSEBUD COUNTY, MONTANA

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U.S. DEPARTMENT OF ENERGY
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ACRONYMS AND ABBREVIATIONS

ACCP	advanced coal conversion process
Btu	British thermal units
CEQ	Council on Environmental Quality
CO	carbon monoxide
CCT	Clean Coal Technology
dBA	decibels (A-weighted)
DOE	Department of Energy
EA	environmental assessment
EIS	environmental impact statement
EP	extraction procedure
EPA	U.S. Environmental Protection Agency
ESP	electrostatic precipitator
FWS	U.S. Fish and Wildlife Service
°F	degrees Fahrenheit
gal	gallon
gpm	gallons per minute
in.	inch
lb	pound
MBtu	million British thermal units
MDHES	Montana Department of Health and Environmental Sciences
MDSL	Montana Department of State Lands
MW	megawatts
μm	microns
NEPA	National Environmental Policy Act
NO _x	nitrogen oxides
OSHA	Occupational Safety and Health Administration
PM-10	particulate matter less than 10 microns in diameter
PON	Program Opportunity Notice
ppm	parts per million
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
SO ₂	sulfur dioxide
SRM	Special Resources Management
t	tons
TCLP	toxicity characteristic leaching procedure
tph	tons per hour
TSP	total suspended particulates
WECO	Western Energy Company
wt.	weight

INTRODUCTION

In December 1985, Congress enacted Public Law 99-190 (the "Act"), which provided funds for the purpose of supporting cost-shared projects with industry to demonstrate both new and retrofit clean coal technologies, whether intended to displace oil and natural gas or to utilize coal more cleanly, efficiently, and/or economically than presently available technologies. On February 17, 1986, DOE issued a Program Opportunity Notice (PON) to solicit proposals for the conduct of cost-shared CCT demonstration projects. Nine projects were selected from among 51 proposals received. The ACCP project proposed by WECO was not among the nine originally selected, but was designated as an alternate project for possible funding in the event that an agreement could not be reached for any of the original selected proposals. In 1989, the ACCP demonstration was selected for negotiation of a Cooperative Agreement as a replacement project. The proposed Federal action is to provide cost-shared financial assistance to the project.

To comply with the environmental review requirements of the National Environmental Policy Act (NEPA), the CCT Program has developed a three-level strategy that is consistent with the President's Council on Environmental Quality (CEQ) regulations for implementing NEPA and the DOE guidelines for compliance with NEPA. The strategy includes the consideration of both programmatic and project-specific environmental impacts during and subsequent to the project selection process. For the first level of environmental review, DOE prepared a programmatic environmental impact analysis based on information supplied by offerors and supplemented by DOE, as necessary. This document analyzed the environmental consequences of the CCT Program and the technologies supported by the program in comparison with the "no-action" alternative. As a second level and prior to project selection, DOE prepared a confidential, project-specific technical, environmental, and economic analysis for internal use in the decision-making process.

As the third and final level of NEPA review, this Environmental Assessment (EA) provides a site-specific analysis of the expected environmental impacts of the proposed action, the ACCP demonstration project. The sources of information for this EA include the technical proposal for the project submitted by WECO to DOE in response to the CCT, Round I, PON; discussions with WECO staff and federal, state, and local agencies; the volume

of environmental information for the project provided by WECO; and a visit to the proposed project site at the Rosebud Mine.

As required by Section 1508.9 of the CEQ regulations, the following sections are provided in this EA:

1. Purpose of and Need For the Proposed Action,
2. Alternatives,
3. Environmental Impacts of the Proposed Action and the No-Action Alternative, and
4. List of Agencies and Persons Consulted.

1. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The proposed Federal action is DOE providing cost-shared financial assistance to Western Energy Company (WECO) for design, construction, and operation of a facility that would use an advanced coal conversion technology to produce 46 tons per hour (tph) of an improved quality fuel. The objective of the process is to enhance the thermal value and environmental acceptability of subbituminous coals and lignite. The demonstration has been scaled large enough to generate sufficient data from design, construction, and operation to enable private industry to assess the potential for commercial application of the Advanced Coal Conversion Process (ACCP) technology.

This project is one of a number of demonstrations planned to be conducted to achieve the objectives of the CCT Program. Successful future commercial application of the ACCP technology could result in reduced atmospheric emissions in regions where the improved quality coal product is burned. Economic benefits would accrue in the form of lower costs to utilities that use the improved fuel instead of retrofit pollution control equipment.

2. ALTERNATIVES

2.1 NO ACTION

Under the no action alternative, whereby DOE does not provide cost-shared funding support, the ACCP demonstration facility might then be completed without DOE participation or it could be canceled. If canceled, the ACCP technology would not be demonstrated for future commercialization. The potential national benefits derived from the demonstration of this technology, which include improved air quality and cost reductions that would result from combustion of the higher-rank ACCP coal product, would not be realized. The current mining, transportation, and use of Rosebud Mine coal would continue.

2.2 THE PROPOSED ACTION

DOE would provide funds through a cooperative agreement with WECO to cost-share in the construction and operation of a facility to demonstrate a low-pressure, moderate-temperature ACCP. The process will produce a better quality (lower ash and sulfur content, drier) fuel with properties similar to those of bituminous coal from low-rank (wet, low heating value) subbituminous coal and lignite. Construction is expected to begin in April 1991 and to be completed by December 1991. Start-up and testing operations would begin in September 1991 for a 6- to 9-month period. A 3-year demonstration period would follow. The ACCP plant is expected to operate with a 75% availability factor. Following the demonstration period, WECO plans additional large-scale process testing through the year 2000. The facility will ultimately be dismantled and the site reclaimed in accordance with state and federal mine reclamation requirements.

Project Location

The ACCP facility would be built on about 5 acres of WECO-controlled property at the 24,000-acre Rosebud Mine, Rosebud County, Montana, approximately 3 miles southwest of the town of Colstrip (Fig. 1). The general location of the proposed facility within the mine boundaries and the layout of the project site near Rosebud Mine Area A coal loadout facilities are depicted in Figs. 2 and 3. Additional environmental documents that describe this area in detail are listed in Appendix A. The construction site is about 600 ft west of the Area A tipple. New structures and equipment would include the following: ACCP demonstration plant; two 40,000-gal propane storage tanks; coal feed, product, and waste conveyors; cooling tower; sorbent storage silo; particulate removal system; dust collectors; and service building. The coal feedstock would be conveyed to the plant from the adjacent Area A stockpile, and electric power would be supplied by a connection with existing lines.

Existing Operations

The Rosebud Mine currently operates with the approval of the State of Montana, Department of State Lands (MDSL), which regulates mining and reclamation, and the Montana Department of Health and Environmental Services

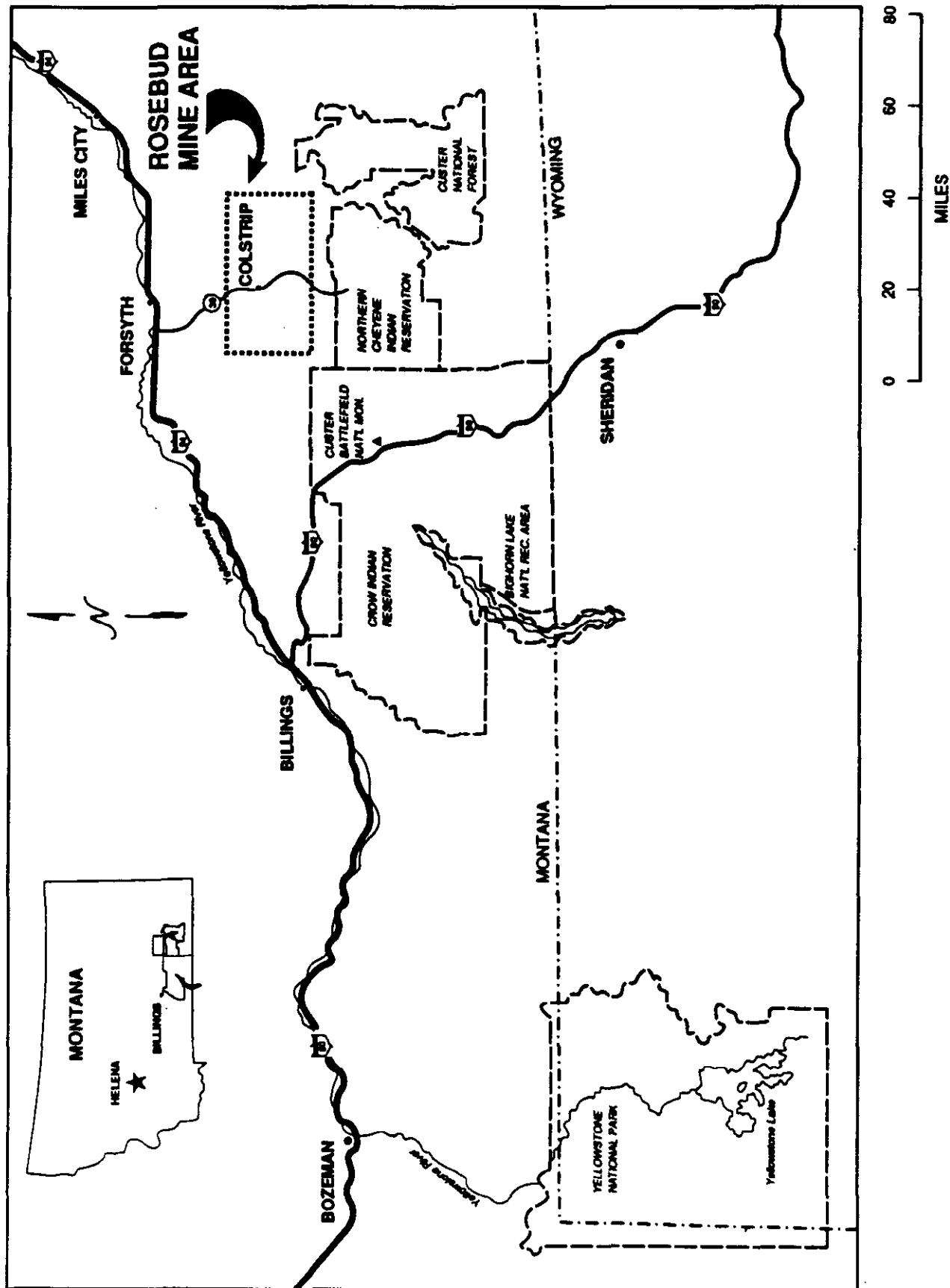


Fig. 1. Regional location of the Rosebud Mine near Colstrip, Montana.

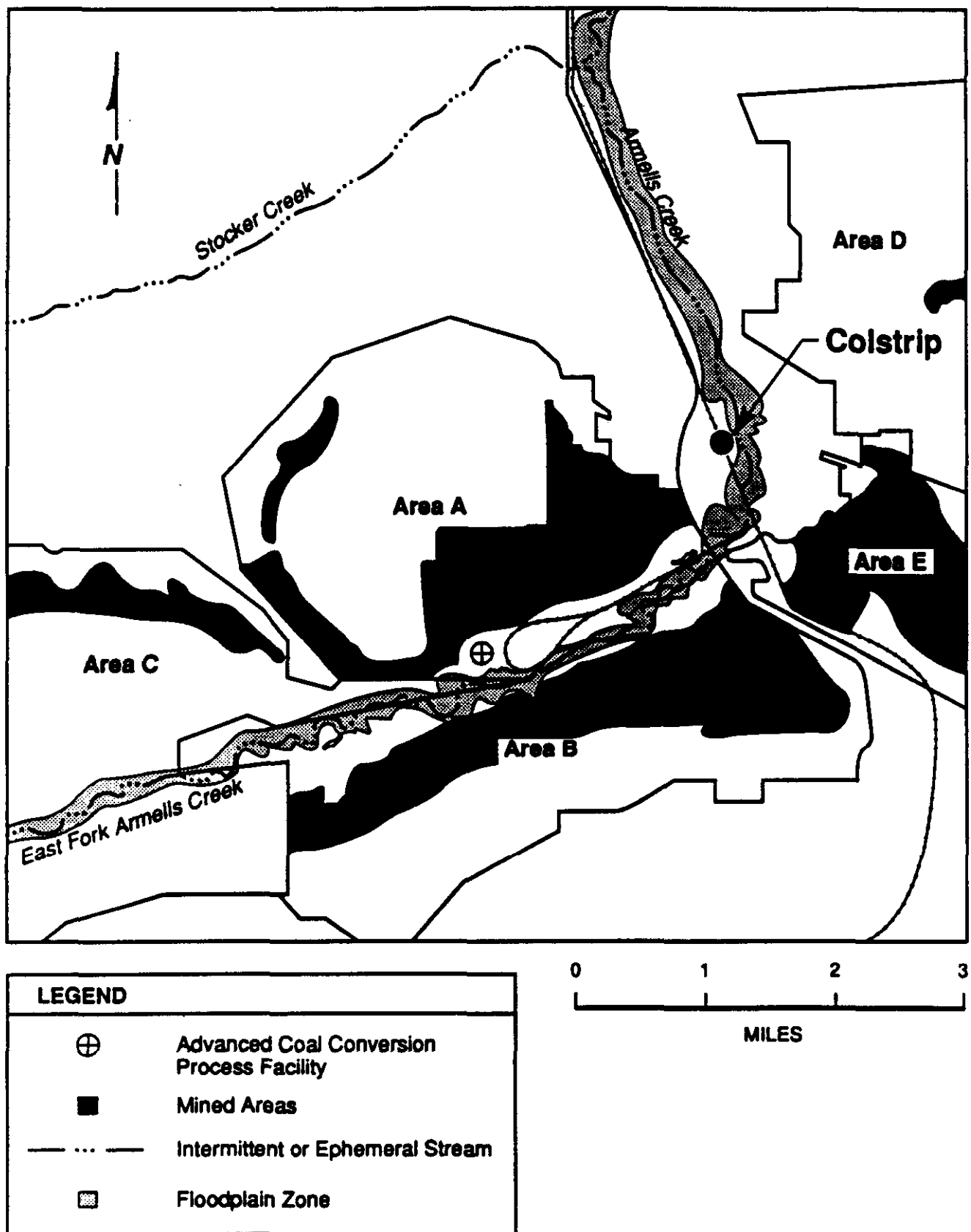


Fig. 2. The site of the proposed Advanced Coal Conversion Process demonstration facility at the Rosebud Mine.

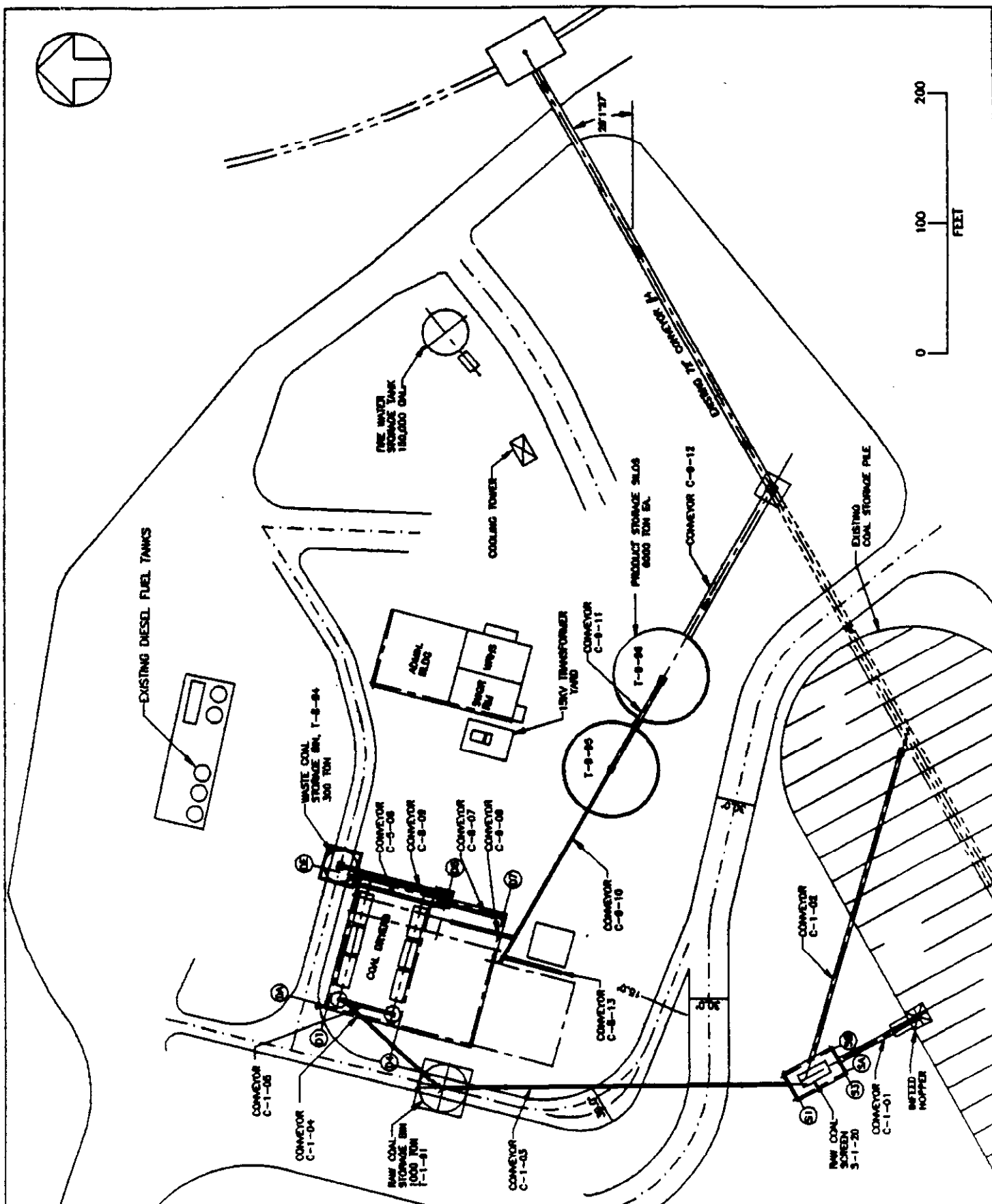


Fig. 3. Site layout for the Advanced Coal Conversion Process demonstration facility

(MDHES), which has primary responsibility for air quality, water quality, and solid waste programs. Surface mining by draglines is conducted in all areas of the mine, which produces approximately 12 million tons of subbituminous coal annually. The mine has a production capacity in excess of 16 million tons per year. WECO plans primarily to use Area A coal because of the ACCP facility's proximity to Area A storage, crushing, and handling facilities. Coal production rates would not be changed because of the proposed ACCP demonstration.

Following mining, the mine pit is backfilled with overburden, recontoured, and revegetated as required in the mine permit. As of September 1987, 2800 acres had been revegetated and incorporated into WECO's post-mine management program for grazing and wildlife use. The mine has a remaining expected lifespan of 30 years.

Process Description

The process that would be demonstrated is depicted in simplified form in Fig. 4. The process involves mild thermal treatment in an inert atmosphere, and it is similar to conventional coal drying techniques in the level of technical complexity. Basically, the process dries coal, liberates ash particles, and converts organic molecules to a denser structure. The product is a stable, solid fuel that has a high content of volatile material and will not reabsorb moisture. A comparison of the feed coal and product fuel is given in Table 1.

Table 1. Comparison of feed coal and product from the proposed Advanced Coal Conversion Process demonstration

Parameter	Feed coal	Product
Demonstration plant flow rate, tph	68.0	46.3
Heating value, Btu/lb	8,600	11,700
Ash content, wt. %	11.0	10.0
Sulfur content, wt. %	0.7	0.6
Moisture, wt. %	23.0	2.0
Emission potential		
• Sulfur dioxide, lb/MBtu	1.6	1.0
• Ash, lb/MBtu	12.8	8.55

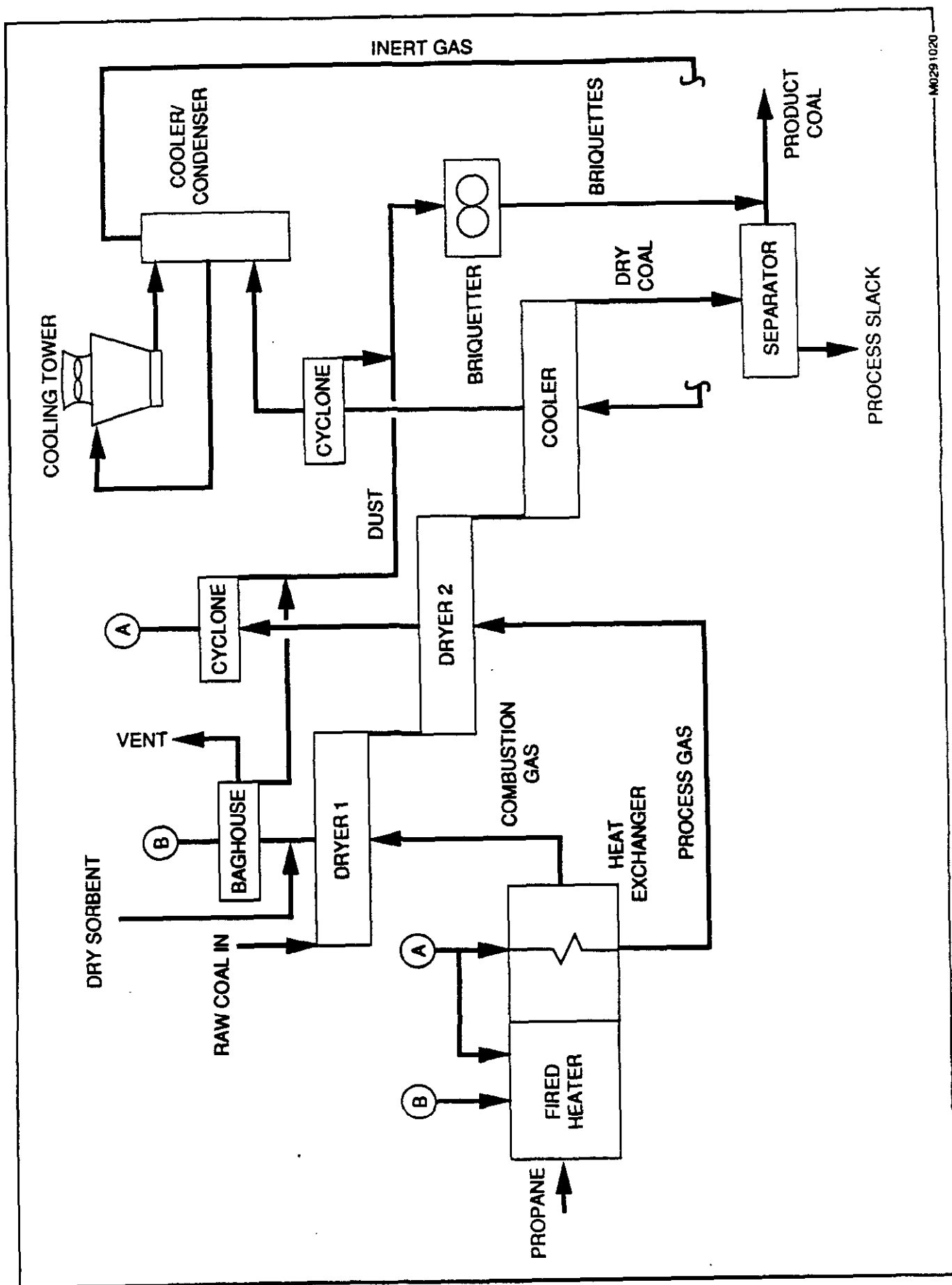


Fig. 4 . SIMPLIFIED PROCESS DIAGRAM FOR ADVANCED COAL CONVERSION PROCESS

The major steps in the process are described in the following sections.

Thermal conversion. Sized coal ($1\frac{1}{2} \times \frac{3}{4}$ in.) is conveyed in dual streams from the feed storage area (see Fig. 3) to a 2-stage, vibratory-fluidized-bed, thermal conversion reactor at a rate of 68 tph. The first stage is heated with combustion gas from the propane fired furnace. The second stage is heated by a recirculating process gas, primarily comprised of steam (~96% by volume) with minor amounts of nitrogen, oxygen, carbon dioxide, carbon monoxide, methane, and hydrogen sulfide. The process gas is heated by a propane furnace. In the first stage, the combustion gas transfers heat to the coal, and surface water is removed. The exit gases are treated with the dry sorbent to remove SO_x and then flow through a baghouse prior to venting to the atmosphere. In the second stage, heat from the recirculated process gas raises the temperature to 450°F, removing pore water and changing the chemical composition of the coal (decarboxylation). With the removal of water, the particles in the coal shrink, causing cleavages, and ash and minerals are liberated. The process gas then passes through a multiclone cyclonic separator to remove particulate matter. A portion of the process gas, referred to as make gas, is diverted after the cyclone to the process furnace to incinerate the make gas. The remaining process gas is reheated and recirculated to the vibratory dryer/reactor to recontact the coal.

Cooling. The coal exits the thermal conversion reactors into a water spray quench section to reduce the coal temperature to 350°F. The water that flashes off as steam is vented to the second staged dryer loop. The quenched coal is then fed to a vibratory cooler. In the vibratory cooler, an inert gas mixture (carbon dioxide and nitrogen) passes across the solids stream to remove heat. The heated inert gas passes through a cyclone particulate separator and a direct contact gas cooler, then recirculates to the vibratory cooler. Inert combustion gas is added as needed to maintain system flow.

Cleaning and separation. The cooled coal product exits to a separator, where screens, separators, and stratifiers mechanically separate the product stream by size (mesh) and specific gravity. A fabric filter (baghouse) removes airborne particulates and dust during operations in this area. Coal fines removed by the baghouses and cyclones in the thermal conversion and cooling

areas are pneumatically conveyed to an enclosed surge bin for compaction into briquettes that become part of the final coal product. Cleaning system refuse (process slack) is conveyed to an enclosed solid waste storage area (see Fig. 3) prior to shipment to an off-site user.

Product storage and shipment. The coal product and briquettes are transported by conveyor to a pair of 6,000 ton concrete storage silos near the existing Area A coal stockpile (see Fig. 3) for rail or truck shipment to off-site users.

Resource Requirements

The proposed project would require about 5 acres of the roughly 24,000 acres currently within the permitted area of the Rosebud Mine, or about 0.02%.

Assuming a 75% availability factor for plant operation and 68 tph raw coal feed, the ACCP facility would require about 445,500 tons of raw coal feed annually. This rate of usage would consume about 4% of the annual production of the Rosebud Mine; however, consumption would be offset by the production of 301,400 tons of coal product annually. On a thermal value basis, 93% of the energy in the raw coal feed is retained in the product.

During start-up, about 20,000 gal of water would be needed to supply the cooling tower loop. During operation, a maximum of 30 gal per minute (gpm) would be needed for cooling tower makeup water. Water would be obtained from an existing mine dewatering pit in Area A. The pit contains about 22 million gal of water that originates on-site from runoff and groundwater seepage.

Approximately 5 million gallons of propane will be burned annually in the process furnace. The flue gas desulfurization system will require approximately 230 tons of nahcolite (NaHCO_3) annually. The reacted nahcolite sorbent (sodium sulfate) is collected in the first stage dryer baghouse and briquetted with the coal fines. The spent sorbent adds an insignificant amount of impurities to the final coal product. The increase in sodium and sulfur to the final product would be for sodium from 1.0% to 1.2% and for sulfur from .6% to .61%. The ash content of the final product would increase from 10% to 10.07%. Electrical requirements for the demonstration plant would be about 27,000 megawatt-hours per year.

Emissions, Effluents, Wastes

A summary of air emissions generated by the proposed action is provided in Table 2. During construction of the ACCP facility and ancillary facilities, fugitive dust (airborne particulates) would be generated by truck and heavy equipment traffic, operation of machinery, and earthwork. In addition, vehicles and machinery would generate small amounts of SO₂, NO_x, carbon monoxide (CO), and unburned hydrocarbons. During operation, combustion of propane and make gas from the process would produce atmospheric emissions of SO₂, NO_x, CO, and particulates.

The ACCP facility would have no wastewater discharges to the environment. Blowdown from the cooler condenser tower will be used for the water spray quenching of the coal.

Wastes and by-products generated by the ACCP are shown in Table 3. The process slack would be burned with other refuse at the Rosebud Energy 35 MWe power plant about 7 miles north of Colstrip. If process slack is not suitable for use at the Rosebud power plant, it may be returned to the mine pit if MDSL approval is granted. MDSL approval was requested in January 1991.

As previously discussed, the spent sorbent from the flue gas desulfurization system is collected by a baghouse system and briquetted along with other coal fines and is combined with the final product.

2.3 ALTERNATIVES ELIMINATED FROM CONSIDERATION

Other technologies that could be demonstrated as part of the CCT Program were fully assessed by DOE in the confidential, pre-selection review process. Therefore, these technologies are not considered further in this EA.

Alternatives to the proposed project site were also considered by DOE during the pre-selection review process. The need for locating the ACCP facility at an operating mine which produces the type of coal to be processed was fundamental to site selection. The WECO-owned Rosebud Mine was considered to be the best site for the proposed ACCP facility, and other sites were eliminated from consideration.

Table 2. Air emissions from the proposed Advanced Coal Conversion Process demonstration

Pollutant	Source	Prior to controls	Emissions after controls	Mitigation/control measure
Fugitive Dust	Earthwork Vehicle traffic exhaust Coal and solid waste transfer	23,711 t/year ^a	83.4 t/year	Process enclosures, dust suppressants
Particulates	Propane and make gas combustion	33,691 t/year	11.9 t/year	Baghouses
Sulfur dioxide (SO ₂)	Propane and make gas combustion Vehicle/equipment exhaust	89 t/year	35.5 t/year	Dry sorbent injection desulfurization baghouses
Nitrogen oxides (NO _x)	Propane and make gas combustion Vehicle/equipment exhaust	51 t/year	34.8 t/year	Low NOx Burner
Carbon monoxide (CO)	Propane and make gas combustion Vehicle/equipment exhaust	119 t/year	28.3 t/year	Special burner design
Hydrocarbons	Process furnace Vehicle/equipment exhaust	434 t/year	0 t/year	Special burner design

^a Multiply by 907.2 to obtain kg/year.

Table 3. Wastes and by-products from the proposed Advanced Coal Conversion Process demonstration

Stream	Source	Quantity	Ultimate disposition
Process slack	Product separator	41,000 t/year	Provided to Rosebud Energy power plant as refuse fuel or buried in mine pit
Spent sorbent	First stage dryer baghouse	205 t/year	Becomes part of final coal product

3. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND THE NO-ACTION ALTERNATIVE

3.1 THE PROPOSED ACTION

Air Quality

Rosebud County has a semi-arid climate with large temperature extremes. Winds are predominantly from the west, and average wind speed is 8 miles per hour. The county is presently in attainment status for all criteria pollutants regulated by the U.S. Environmental Protection Agency (EPA) through the National Ambient Air Quality Standards, with the exception of total suspended particulates (TSP). The TSP standard was modified recently by EPA to a PM-10 standard, which applies to particulates less than 10 microns (μm) in diameter (i.e., those that are respirable). The county is expected to be found in attainment with the PM-10 standard.

Table 2 lists estimated atmospheric emissions from the ACCP demonstration. The total potential emissions from the proposed project represent an extremely small increment of the existing emissions from mining and power generating facilities at Colstrip. Construction of the ACCP facility would disturb a maximum of 5 acres of land, creating fugitive dust. In addition, vehicle traffic, coal conveying and transfer, process slack (waste) conveying, internal engine combustion, and propane combustion would release particulate matter to the atmosphere. Gaseous SO_2 , NO_x , CO, and unburned hydrocarbons would be emitted by internal combustion engines (construction equipment and vehicles) and by the propane-fueled process furnace.

An effective dust suppression operation at the mine uses water from the dewatering pits on all haul roads, and conveyors and coal handling areas are enclosed or covered. These practices would continue during the demonstration. Pollution control measures (cyclones and baghouse) would also be used to collect particulates generated by process operations.

Because of the relatively small area of land potentially disturbed, the limited duration of the construction period, the localized nature of emissions during construction and operation, and control measures to be implemented, air quality in Rosebud County is not expected to be measurably degraded by the proposed project. In 1988, WECO submitted the results of an air quality

modeling analysis and descriptive project information to MDHES, Air Quality Bureau, in an application for an air quality permit for construction and operation of the ACCP facility. A permit has been granted; however, WECO is in the process of amending this permit to the air emissions amounts shown in Table 2.

Monitoring of particulate emissions from the thermal conversion reactor (dryer) and the product cleaning exhaust streams will be conducted during the first 6 months of facility operation to demonstrate compliance with the air quality permit. Further monitoring would be as directed by MDHES.

Water Resources

No natural, permanent surface waters exist within the Rosebud Mine site. Intermittent and ephemeral on-site streams flow only during precipitation or snowmelt. The surface water nearest the project site is East Fork Armells Creek (see Fig. 2). Aquifers in Area A occur in the East Fork Armells Creek alluvium, coal beds, overburden, and sandstones in the bedrock. Groundwater in the Colstrip area is used primarily for stock watering and is not suitable as a potable supply without treatment because of its high mineral and dissolved solids content.

The proposed project would not adversely affect surface water or groundwater resources in Rosebud County. Erosion and sedimentation control measures currently in use at the mine, such as diversion ditches and sedimentation ponds, would minimize the potential for contamination of runoff during construction and plant operation, including runoff from the coal feed, coal product, and process slack storage areas.

The ACCP is designed so no wastewater is generated. The permit to mine contains conditions requiring that monthly groundwater measurements be taken and that groundwater samples be analyzed quarterly for standard water quality parameters. Surface waters within the mine boundaries, which are sampled on a monthly to quarterly basis in accordance with the current mining permit, will continue to be monitored during the project.

Nonpotable water requirements for the facility would be met by water contained in mine dewatering pits, which have an ample supply available. The Area A pit, which would supply the demonstration, has about 22 million gallons in storage; there are about 65 million gallons stored minewide. Process start-up would require about 20,000 gallons, which is less than 1% of the

Area A pit water. Makeup water requirements would be an estimated maximum of 30 gpm which would be met by mine pit water.

Potable water at the new facility would be obtained from either a bottled water supplier or from the Colstrip public supply, which is drawn from the Yellowstone River 30 miles north.

A Montana Pollutant Discharge Elimination System permit from the MDHES, Water Quality Bureau, will not be required for the proposed action because no effluent will be discharged to the surface waters of the state. A permit to appropriate water under the Montana Water Use Act will not be needed because WECO will use existing water resources at the mine, an action that is permissible under the terms of the mining permit.

Land Use

All new facilities to be constructed and operated as part of the proposed action would be located within an active coal mining area where current land use is primarily industrial. The new facility would occupy about 5 acres, or 0.02% of the total mine area. Although some reclaimed areas of the mine are currently used for grazing and wildlife habitat, none would be affected by the proposed action. No local requirements exist for a building or other permit for the proposed facility. A revision to the mining permit issued by the MDSL for the Rosebud Mine is necessary for the proposed project. WECO received approval of the revision in 1989; however, WECO is in the process of amending this permit to reflect, if necessary, the disposal of process slack into the mine pit.

Ecological Impacts

The site of the proposed facility consists only of grassland and is located adjacent to existing coal handling and transfer facilities in Area A. Because of mining and industrial activities, few wildlife frequent the project area. Construction and operation of the ACCP facility would not adversely affect terrestrial vegetation, wildlife, or habitat. Because no aquatic habitat is within the zone of influence of the facility, aquatic biota would not be affected by the proposed project.

No species listed as threatened or endangered or proposed to be listed by the U.S. Fish and Wildlife Service (FWS) is known to occur at the Rosebud Mine. DOE has been advised by the FWS in a letter dated June 18, 1990, that

no federally listed threatened or endangered species and no critical or protected habitat would be adversely affected by the project.

Floodplain and Wetlands

The new ACCP facilities would be located at least 150 ft beyond the nearest boundary of the floodplain of East Fork Armells Creek. No wetlands are present in the vicinity of the proposed site, and none would be affected by operation of the ACCP facility.

Waste Management

Nonhazardous construction wastes, including cement and debris, and ordinary trash from the ACCP facility either would be disposed of in a new landfill for Rosebud County which is currently being permitted or would be hauled to either Miles City or Billings, Montana, in the interim.

Construction and operation (maintenance) of the ACCP facility would generate incidental quantities of common hazardous wastes, such as paint, paint-thinners, lubricants, and solvents. These wastes would be stored on-site at a currently permitted interim storage site in accordance with Resource Conservation and Recovery Act (RCRA) regulations. Accumulated wastes would subsequently be removed for disposal by Special Resources Management (SRM), a firm specializing in hazardous waste management and a sister company of WECO. SRM currently manages Rosebud Mine hazardous waste.

Mechanical separation of the coal product from the ACCP would produce approximately 41,000 tons per year of process slack. This waste would have characteristics similar to the 600,000 to 900,000 tons of top and bottom seam coal (pit slack) currently wasted annually from mining operations; that is, it would have 40 to 45% ash, 7-8% sulfur, and 7,500 Btu/lb. WECO currently provides the nearby Rosebud Energy power plant with pit slack for use as refuse fuel. During operation of the ACCP demonstration, WECO would supply the plant with a mixture of process and pit slack of a quality that would meet the requirements of the plant's fluidized bed boiler and air quality permit. Ash from the Rosebud plant is disposed of at an on-site state-permitted landfill.

As an alternative, WECO has requested an amendment to their permit-to-mine to dispose of their process slack in the mine pit with the pit slack. Chemical analysis (see Table 4) confirms the similarity between the process

slack and the pit slack in terms of water soluble constituents. As a consequence of the relatively small amount of process slack in relationship to pit slack already permitted for placement in the mine pit, no significant impacts to ground water are expected if process slack is disposed of in the mine pit.

TABLE 4
GROUND WATER QUALITY IMPACT ANALYSIS ¹

EPA Standard	Parameter	Allowable Level	Process ² Slack	Pit ³ Slack
Primary ⁴	As	0.05	<0.030	<0.030
	Ba	1.0	0.1	0.1
	Cd	0.010	<0.005	0.008
	Cr	0.05	<0.02	<0.02
	Pb	0.05	<0.02	<0.02
	Hg	0.002	0.0025	0.017
	NO ₃ -N	10.0	1.49	1.44
	Se	0.01	<0.015	<0.015
Secondary ⁴	Ag	0.05	<0.02	<0.02
	F	1.4-2.4	0.55	0.40
	Cl	250	<10.0	<10.0
	Cu	1.0	0.02	0.07
	Fe	0.3	0.06	0.14
	Mn	0.05	0.87	0.41
	SO ₄	250	600	600
	Zn	5.0	0.09	0.12
	pH (st. units)	6.5-8.5	6.6	6.1
	TDS	500	1200	1200

¹ All values in mg/l.

² Process slack analysis from paste extract.

³ Averaged from Areas A, B, C pit samples from paste extract.

⁴ National primary and secondary drinking water standards set by U.S. EPA.

Socioeconomic Impacts

Colstrip is a planned community of 4,300 residents that has expanded since the early 1970s in conjunction with the growth of WECO mining operations and the construction of Montana Power Company's Colstrip Units 1, 2, 3, and 4, which generate a combined total of 2,060 MW. The services and institutions that comprise the local infrastructure at Colstrip are similar to those of larger cities.

The socioeconomics of Colstrip and Rosebud County would not be adversely affected by the proposed ACCP project. At peak construction, a labor force of

about 120 persons would be needed. Approximately 35 of these workers would be drawn from the local labor pool in Rosebud County, which had a 1988 unemployment rate of 8%, or 2.6% above the national average. The remaining construction workers would commute from Billings or Miles City for the estimated 6-month construction period. This increase would be incidental within the context of past peak employment (4,180 persons) in Colstrip associated with the construction of the 700-MW Colstrip 3 and 4 power plants in 1982. An estimated 35 permanent jobs would be filled for operation of the demonstration facility.

A few specialized skills may be required for construction and operation; however, the number of in-migrating workers to Colstrip would be small (75 or less) and would not significantly increase the local population. Because of this, housing, public services, and the local infrastructure would not be affected.

Both the Northern Cheyenne and Crow tribes have reservations in the area. It is not anticipated that this project will have any impact on Native American tribes in the area. In response to litigation initiated by the Northern Cheyenne Tribe after completion of the Powder River Coal Region EIS (BLM 1981), the Bureau of Land Management prepared an Economic, Social, and Cultural Supplement to the EIS (BLM 1989; BLM 1990). In this supplement, the impacts to the Northern Cheyenne and Crow tribes were examined for each of nine subject areas,¹ considered from the no action and preferred alternative viewpoints of the EIS. Two broad scenarios were considered: high and low baseline alternatives (no action) and a preferred alternative in which federal coal tracts in the Montana portion of the Powder River Coal Region were developed. In the nine subject areas, no more than a moderate impact to the two Indian tribes was concluded to result from implementation of the preferred alternative.

Traffic on local roads and within the mine would increase slightly during construction (by about 100 vehicles per day) and operation (by about 20 vehicles per day), but the traffic patterns and flow in the region would not be adversely affected.

¹The nine subject areas were employment; population; income; tribal revenue; tribal government; housing, services, infrastructure; social organization; social well-being; and cultural conditions.

Cultural Resources

No historic or archaeological resources are found within the project area. In a letter dated June 7, 1990, the Montana State Historic Preservation Office advised DOE that the proposed project would not likely affect a known archaeological site in Area A of the mine or any properties on or eligible for the National Register of Historic Places.

Noise

The intensity of ambient noise at the Rosebud Mine varies with the location of active mining, ranging from 85 to 110 dBA; these noise levels are sporadic, localized, and temporary, depending on the nature of the source.

During construction and operation of the demonstration project, traffic, coal and waste handling and transfer, and process machinery and equipment would influence ambient noise levels within the mine boundaries, but increases would again be localized, sporadic, and temporary. Because of the location of the project in an active mining area about 3 miles from heavily populated areas, off-site perception of ambient changes in noise levels is unlikely. A few scattered residences are located in rural areas within the permitted area of the mine (about 0.4 mile from the project site). Residents may detect changes in the frequency and occurrence of increased noise during construction activities. Maximum noise levels during construction and operation will not exceed 60 dBA at any noise-sensitive location. No hospitals, nursing homes, or other public facilities are located within a 2-mile radius of the proposed site.

Occupational Health and Safety

Workplace noise exposure inside plant boundaries would be limited to that allowable under Occupational Safety and Health Administration (OSHA) regulations. Appropriate engineered controls and personal hearing protection would minimize worker exposure.

Safety and health hazards presented by chemicals, machinery, and vehicles would be minimized by a combination of engineered controls, worker training, and personal protective equipment. Workplace health and safety would be monitored in accordance with OSHA requirements.

3.2 NO-ACTION ALTERNATIVE

If no action is taken with regard to the proposed ACCP demonstration, there would be no change in current environmental conditions at the proposed site and in Rosebud County.

4. LIST OF AGENCIES AND PERSONS CONSULTED

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APPENDIX A

Recent Environmental Documents Regarding Resources in the Rosebud Mine Area

RECENT ENVIRONMENTAL DOCUMENTS REGARDING
RESOURCES IN THE ROSEBUD MINE AREA

Powder River I Regional Environmental Impact Statement, Final Economic, Social and Cultural Supplement, U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, Western Support Center, June 1990.

Final Environmental Impact Statement, Peabody Coal Company's Big Sky Area B Mine, State of Montana, Department of State Lands and U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, November 1988.

Preliminary Environmental Review/Environmental Assessment, Western Energy Company, Rosebud Mine, Area C, Life-of-Mine, Amendment Application, State of Montana, Department of State Lands, U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, November 1988.

Draft Environmental Impact Statement Supplement for the Federal Coal Management Program, U.S. Department of the Interior, Bureau of Land Management, February 1985.

Draft Environmental Impact Statement, Western Energy Company's Rosebud Mine, Area D, State of Montana, Department of State Lands, U.S. Department of the Interior, January 1985.

Final Resource Management Plan/Environmental Impact Statement, Powder River Resource Area, U.S. Department of the Interior, December 1984.

Technical and Environmental Assessment for Repermitting and Extension of Mining and Reclamation, Area A, Rosebud Mine, State of Montana, Department of State Lands, February 1984.